

REMARKS

Reconsideration of the above-referenced application is respectfully requested in view of the above amendments and these remarks. In this Amendment, Claims 1-3, 6-7, 9-11, 14-19 are pending.

The Specification is objected to for failure to include a reference in the Brief Description of the Drawings to FIG. 7. Applicants have added such a description. No new matter is entered by way of this addition as FIG. 7 was included in the application as filed and was described in detail on page 7, line 28 through page 8, line 2. In addition, it was noted that the formula on page 4, line 34 was unclear. Appropriate corrections have been made to this formula. No new matter is entered by way of this amendment to the Specification. This formula is consistent with the content of what was filed in the original application and the derivation of the other formulas in the application. It is respectfully submitted the content and format of the Specification is proper. Applicants therefore request that the objections be withdrawn.

In the Office Action, claims 1-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent Application Publication No. 2004/0157609 to Jalloul et al. in view of United States Patent Application Publication No. 2002/0122392 to Elezabi. Claim 1 has been amended to overcome the rejection. In particular, claim 1 has been amended to state combiner outputs the combined branch metrics having a coding rate of the combined first and second coding rates.

In the Office Action, it is stated that Jalloul teaches that different encoding rates are used in the communication process so that the first and second encoding schemes have to be used. Further, in order to prove that this is something easy to do, Elezabi is used to show how to combine the results from two branch metrics will fulfill the task of handoff with different encoding rates. Even though Jalloul discloses that there are two encoding rates used in handoff process between an IS95B base station and an IS95C base station, and both a rate R2 signal and a rate R3 signal are used in the process, the IS95B base station has only rate R2 signal, while IS 95C base station has both R2 and R3 signals. This is so because IS95C is backward compatible with the IS95B base station signals. Nonetheless, Jalloul does not use the two different encoding rates at the same time and simultaneously. Instead, they are used in sequence with R2 signals first, and

then R3 signal once the handoff process is finished, so that different rate signals are never combined during the handoff process.

In addition, it is stated that the combiner of Jalloul combines the two branch output from two different interleavers. However, Jalloul discloses that the two branches contain the exactly same processing elements with different input signals scrambled with different PN sequences PNB and PNC. This is very important because it is shown that it is combining the two signals, one is from IS95B base station (PNB) and one is from IS95C base station (PNC). Since IS95C is backward compatible with IS95B base station and is differentiated only by the PN sequence (PNC) from the IS95B base station (PNB) in his patent, the signals it combines have the same encoding rates and information contents. This is shown in the Fig. 3 of Jalloul where the deinterleavers are both IS95B deinterleavers.

This is also shown in the handoff process in Fig. 4 and Fig. 5 of Jalloul. In these figures, the vertical lines are in time scale, which represent the events happening in the order with time. Also, event 405 shows that before the IS95C base station can talk to IS95B base station, it has to reduce its rate from R3 to R2, then in the two events below 405, it states starting soft handoff at encoding rate R2 with IS95A/B base station with the combiner showed in Fig. 3. This clearly shows that Jalloul combines the two signals with the same encoding rate and the same information content before the handoff can be finished. Furthermore, in the Fig. 5 of Jalloul, event 505 instructs IS95C base station that the dual mode mobile is using a R2 encoding rate so that the next event right below 505 is to set the IS95C base station rate to R2 to start the soft handoff at R2 with IS95B base station. Thus, the combining has to use the same encoding rate and same information content before the soft handoff can happen.

Paragraph 0022, line 1-3 and last lines of Jalloul also state that different communication data rates are allowed during the handoff process. But the different communication data rates are used at different times, and they were never combined with the different data rates (or encoding rates). Instead, the same encoding rate R2 is used for the soft combining during this soft handoff process. As for Fig. 2 of Jalloul, that circuit is for the dual mode mobile to detect if an IS 95C base station is available for handing off and is used as a trigger as is showed in Fig. 5 of Jalloul. In the event marked "2" of 3G

BCCH shown in FIG. 5, the mobile detects that particular channel, as indicated in the next event right below, to start a communication link to the IS95C once the BCCH is detected. It is never in any process of combining.

Even though Fig. 5 of Jalloul shows the cell site 401 is at a first rate R2 and second cell site 402 at a second rate R3, before the cell site 402 can have a rate R3 signal going, it has to start the soft handoff at R2 first for combining. When the cell site has the encoding rate shifted to R3, the soft handoff process (which involves the soft combining process) has already finished and there is no combining. So, the two encoding rates are used at different times.

With respect to Elezabi, that cited reference is directed to interference cancellation, which is essentially trying to cancel the interfering signals from other users. Since the information contents from other users are totally different from the target user, there is no combining process but a canceling process in the interference cancellation process. In Fig.2 of Elezabi, the signals $\tilde{y}_2(l)$ through $\tilde{y}_K(l)$ are from different users. See paragraph 0028, lines 11- 13. Even though there is a summer device 210 in Fig.2 of Elezabi's patent, there is no combining of the same information contents happening in this diagram.

In view of the foregoing, it is respectfully submitted that the combination of Jalloul and Elezabi does not disclose, teach or otherwise suggest the combiner of claim 1 that combines first and second branch metrics having different encoding rates and outputting the combined branch metrics having the first and second encoding rates. Claim 1 is therefore not obvious in view of the cited references under Section 103(a). Applicant respectfully requests that this rejection as to claim 1 be withdrawn. As claims 2 and 3 depend upon and include the limitations of claim 1, it is respectfully submitted that Jalloul and Elezabi do not disclose, teach or otherwise suggest the subject of these claims for the reasons given above. Applicant respectfully requests that the rejection to claims 2 and 3 be withdrawn.

Claims 6, 7, 9-11 and 14-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 5,701,333 to Okanou et al. in view of Jalloul. Applicants have amended claims 6 and 11 to overcome this rejection. As with claim 1, claims 6 and 11 include limitations that the combiner combines the first and

second branch metrics and outputs combined metrics having both the first and second encoding rates. As discussed fully above, Jalloul does not disclose that the output of the combiner is a branch metrics using both the first and second encoding rates. Okanoué's patent is directed to diversity reception. Claims 6 and 11 are different from diversity reception disclosed by Okanoué because in diversity reception there is only one transmitted signal source with multiple receiving antennas (as shown in Fig. 1 of Okanoué's patent) for diversity reception (Okanoué's patent column 1, line 53 through 67, and column 2 line 1 through line 20). On the other hand, there are two transmitting signal sources during a soft handoff process in the present invention. In particular, the present invention has two or more signals with different encoding rates from different base stations. For the diversity reception case, since the source signal is the same for both diversity branches, Okanoué is calculating the same branch metrics in order to combine them. Thus, Okanoué is a combining process of the same encoding rates. Since the combining is done based on the same way to calculate metrics with the same encoding rates, the cited reference does not have the same concept as indicated by the present invention.

In view of the foregoing, it is respectfully submitted that the combination of Jalloul and Okanoué does not disclose, teach or otherwise suggest the combiner of claims 6 and 11 that combines first and second branch metrics having different encoding rates and outputting the combined branch metrics having the first and second encoding rates. Claims 6 and 11 are therefore not obvious in view of the cited references under Section 103(a). Applicant respectfully requests that this rejection as to claim 1 be withdrawn. As claims 7, 9-10 and 18-19 depend upon and include the limitations of claim 6 and claims 14-17 depend upon and include the limitations of claim 11, it is respectfully submitted that Jalloul and Okanoué do not disclose, teach or otherwise suggest the subject of these claims for the reasons given above. Applicant respectfully requests that the rejection to claims 6, 7, 9-11 and 14-19 be withdrawn.

As the Applicants have overcome all substantive rejections and objections given by the Examiner and have complied with all requests properly presented by the Examiner, the Applicants contend that this Amendment, with the above discussion, overcomes the Examiner's objections to and rejections of the pending claims. Therefore,

the Applicants respectfully solicit allowance of the application. If the Examiner is of the opinion that any issues regarding the status of the claims remain after this response, the Examiner is invited to contact the undersigned representative to expedite resolution of the matter.

Respectfully submitted,
Jiangnan Chen, et al.

By: 

Simon B. Anolick
Attorney for Applicants
Registration No. 37,585
Phone No.: 847/576-4234
Fax No.: 847/576-3750